APPLICATION

The local group of Star Trek fans just inherited $500,000 from their late founder and president. The will specifies that they are to spend the money to build a new headquarters with their organization’s logo that looks exactly like the old sign, only larger.

The T on the old sign was **outlined** with a curved piece of neon tubing **13.4 feet** and the T itself was covered with gold leaf.

On the top of the sign was a model of the Starship Enterprise which was **three feet long**.

On the current building, the circular portion of the sign has a **radius of 2 feet,** while on the new sign the circular portion will have a **5 foot radius**.

1. How long a piece of neon tubing will they need?
2. If they had to buy 3.6 (Troy) ounces of gold to cover the T in their old logo, how much gold will they need for their new logo?
3. If the current model of the Enterprise weighs 58 pounds, how much will the new enlarged model weigh if it is made from the same material? (**Weight is often used interchangeably with volume)**

Suppose the Trekees wanted to make a small indoor sign similar to the old outside sign but with a radius of 1 foot.

1. Find the length of neon tubing needed.
2. Find the amount of gold needed.
3. Find the weight of this Enterprise model.